

• Buffalo Electric Fans

For Blowing, Exhausting
Ventilating, Cooling, Drying

“A Fan for Every Service”



BULLETIN 182 E

BUFFALO FORGE COMPANY

BUFFALO, N. Y.

Buffalo Electric Forge Blowers



No. 2E

Variable Speed Type

These small blowers are used for a great variety of purposes, such as blowing furnaces, church organs and forge fires; removing scale from power hammers and chips in metal and woodworking operations, etc.; or for exhausting from small grinding and buffing wheels used in a variety of trades.

The motor is of such design that it will operate efficiently and with equal satisfaction on any circuit, either direct or alternating current, any frequency.

Nos. 1-E and 2-E use less current than a 16 C. P. bulb and as we furnish wire and plug with each outfit, they can be installed without expense, simply by screwing the plug into a lamp socket.

The large diameter and superior design of the fan, with blast delivery along the line of least resistance, gives minimum friction, therefore longest life and lowest power consumption. No. 2-E can be run for 30 to 40 cents per month. The oil chamber is large and the running parts self-oiling. The oil cups cannot be knocked off. The brushes are from two to three times larger than the ordinary to avoid frequent replacing.

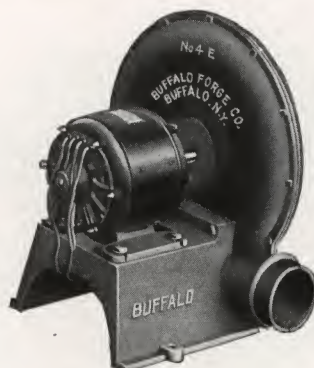
A speed regulator is furnished, giving six variations of blast, from the lightest to the strongest. When ordering, simply state if for 110 or 220 Volts.

The fan case is always arranged for blowing and will be shipped this way unless specifically stated that it is wanted for exhaust service.

Variable Speed Motors	No. 1-E	No. 2-E	No. 2-EH	No. 3-E
List Price, 110-Volts	\$36.00	\$40.00	\$56.00	\$72.00
List Price, 220-Volts				
Weight,	40 lbs.	50 lbs.	55 lbs.	60 lbs.
R. P. M.	3800	2200	3000	3000
Diameter of Outlet,	3 in.	3 in.	3 in.	4 in.
Total Height,	10 in.	15 in.	15 in.	15 in.
Capacity, Air per Minute,	60 cu. ft.	75 cu. ft.	150 cu. ft.	200 cu. ft.
Pressure,	1 oz.	1½ oz.	2½ oz.	2 oz.

Buffalo Electric Forge Blowers

Blowing
Cooling
Drying
Ventilating



No. 4E

Furnished for
exhaust service
only when so
ordered

Constant Speed Type

The application of this outfit is as wide as that of our Variable Speed Type described on the preceding page. It is used where the variable speed would be of no special advantage.

One or more blast-gates are furnished with these blowers, which serve the same purpose as a speed regulator.

These outfits are made for:

1. Direct current circuits, 110-220 Volts.
2. Alternating current, 110-220 Volts, 60 cycle, single phase.

In ordering, please state specifically the nature of your current to avoid all misunderstanding. Wire and plug are furnished free with each outfit, excepting No. 4-E, which cannot be connected to lighting circuits and therefore requires special wiring.

The other sizes can be installed without expense, simply by screwing the plug into a lamp socket. The No. 2-E uses less power than a 16 C. P. bulb.

All outfits are made and shipped for blowing service, **unless the order specifically states that they are wanted for exhaust service.** No extra charge is made for the latter.

We are the largest distributors in the country of small electric blowers and very early brought these units up to a high state of perfection. Every outfit is guaranteed to be exactly as represented and to run smoothly and noiselessly.

Constant Speed Motors	No. 2-E	No. 2-EH	No. 3-E	No. 4-E
List Price, A. C. Motor,	\$40.00	\$60.00	\$80.00	\$110.00
List Price, D. C. Motor,	\$40.00	\$50.00	\$64.00	\$96.00
Weight, complete,	50 lbs.	55 lbs.	60 lbs.	110 lbs.
Height over all,	15 in.	15 in.	15 in.	20 in.
Diameter of outlet,	3 in.	3 in.	4 in.	5 in.
A. C. Motor, Cycles,	60	60	60	60
D. C. Motor, R. P. M.,	1800	3000	3000	3200
A. C. Motor, R. P. M.,	1700	3400	3400	3400
Capacity, Air per Minute,	75 cu. ft.	150 cu. ft.	200 cu. ft.	250 cu. ft.
Pressure,	1½ oz.	2½ oz.	2 oz.	2½ oz.

Buffalo Baby Conoidal Fans



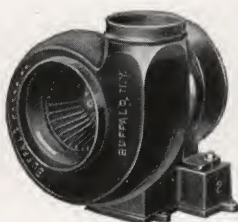
The Baby Conoidal Fan is of the high efficiency multiblade type with blast wheel of the same design as the Niagara Conoidal (Type N) which has met with such marked success. Housing is cast iron and can be swung around to discharge in any desired direction. This fan furnishes a large volume of air at a relatively low pressure with moderate speed. The wheel is accurately balanced assuring a smooth-running, noiseless machine; its "hum" is almost inaudible.

It is unexcelled for all kinds of drying and cooling purposes, for supplying fresh, cool air to offices, homes, staterooms, telephone booths, etc. and for exhausting smoke, fumes and foul air from kitchens, restaurants, lavatories, etc.

Cord and plug are furnished with No. 3 and smaller; no expense for installing, simply attach to an electric light socket. Outfits are furnished with 110 or 220 Volt D. C. motors and 110 or 220 Volt single phase, 60 cycle, A. C. motors. Nos. 4, 5 and 6 are also furnished with 110 or 220 Volt, 2 or 3 phase, 60 cycle motors.



No. 1



No. 2

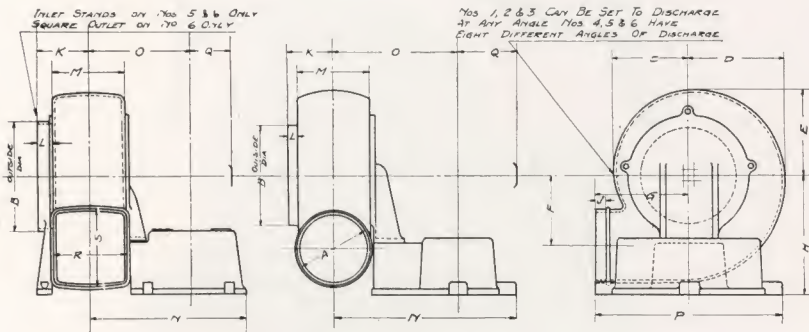


No. 3

Buffalo Baby Conoidal Fans

Size No.	Cubic Feet Air per Minute	H. P. Motor	R. P. M.	Shipping Weight Lbs.	List Prices		
					D. C. 110-220 Volt.	A. C. 60 Cycle Single Phase 110-220 Volt.	A. C. 60 Cycle 2 or 3 Phase 110-220 Volt.
1	90	$\frac{1}{30}$	1740	40	\$ 50.00	\$ 50.00	.....
2	250	$\frac{1}{8}$	1740	55	75.00	90.00	.....
3	325	$\frac{1}{8}$	1140	110	96.00	116.00	.....
3	500	$\frac{1}{4}$	1740	115	100.00	120.00	.....
4	690	$\frac{1}{4}$	870	450	210.00	285.00	\$210.00
4	900	$\frac{1}{2}$	1140	475	235.00	300.00	225.00
4	1400	$1\frac{1}{2}$	1740	500	260.00	*325.00	235.00
5	1100	$\frac{1}{2}$	690	625	285.00	.....	285.00
5	1400	$\frac{3}{4}$	870	650	310.00	385.00	300.00
5	1800	$1\frac{1}{2}$	1140	675	350.00	400.00	310.00
6	1800	1	690	850	360.00	.....	360.00
6	2400	2	870	875	425.00	560.00	375.00
6	3100	3	1140	900	435.00	735.00	385.00

*2 H. P. Motor is used.



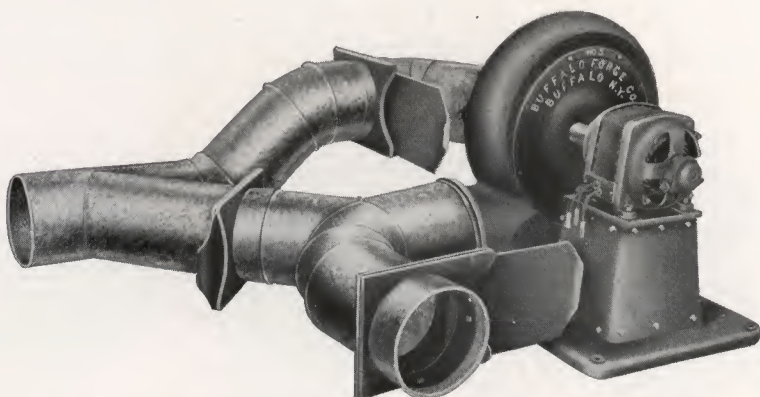
Dimensions in Inches

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S
1	3	4	3	$3\frac{7}{8}$	$3\frac{7}{16}$	$2\frac{15}{16}$	$3\frac{3}{4}$	$4\frac{3}{4}$	$\frac{7}{16}$	$1\frac{13}{16}$	$\frac{3}{8}$	$2\frac{7}{8}$	$6\frac{15}{16}$	5	$7\frac{1}{2}$	3	.....	.....
2	4	$5\frac{1}{2}$	$3\frac{21}{32}$	$4\frac{29}{32}$	$4\frac{9}{16}$	$3\frac{3}{4}$	$4\frac{3}{4}$	$6\frac{1}{4}$	$\frac{5}{8}$	$2\frac{1}{2}$	$\frac{9}{16}$	$3\frac{7}{8}$	$8\frac{15}{16}$	$6\frac{15}{16}$	$8\frac{3}{4}$	3	.....	.....
3	$5\frac{3}{4}$	$7\frac{3}{4}$	$5\frac{3}{16}$	$7\frac{1}{16}$	$6\frac{1}{8}$	$5\frac{7}{16}$	$6\frac{1}{2}$	$8\frac{3}{4}$	$\frac{3}{4}$	$3\frac{5}{16}$	$\frac{11}{16}$	$5\frac{1}{4}$	$10\frac{1}{8}$	$7\frac{7}{8}$	$10\frac{1}{4}$	5	.....	.....
4	$8\frac{3}{4}$	$11\frac{3}{8}$	$7\frac{9}{16}$	$10\frac{7}{16}$	9	$7\frac{5}{8}$	10	13	2	6	2	8	.....	.....	.....	.....	.....	.....
5	$10\frac{7}{8}$	$14\frac{1}{4}$	$9\frac{3}{8}$	$12\frac{7}{8}$	$11\frac{1}{8}$	$9\frac{3}{8}$	11	16	2	$7\frac{13}{32}$	$2\frac{3}{8}$	$9\frac{15}{16}$	.....	.....	.....	.....	.....	.....
6	.....	$17\frac{1}{2}$	$11\frac{3}{16}$	$15\frac{7}{16}$	$13\frac{5}{16}$	$11\frac{3}{8}$	$11\frac{1}{2}$	19	2	$8\frac{3}{8}$	$2\frac{1}{2}$	$11\frac{3}{4}$	.....	.....	.....	.....	$11\frac{5}{8}$	$12\frac{3}{8}$

Buffalo Electric Fans



Buffalo Steel Plate Forge Equipped with Buffalo Electric Forge Blower



Buffalo Electric "B" Volume Exhauster Arranged for Mine Ventilation

Buffalo Electric "B" Volume Blowers and Exhausters

The design and structural details of Buffalo "B" Volume Blowers and Exhausters are the results of practical knowledge gained by years of successful experience building centrifugal fans for all purposes.

These blowers and exhausters have a cast-iron solid peripheral shell, absolutely preventing leakage at the points of highest pressure. Removable cast-iron side plates give easy access to interior and allow blast wheel and shaft to be removed without trouble.

The blast wheel is of heavy rolled steel plate, mounted on a malleable-iron spider or hub. The backward turned vanes are securely riveted to the arms of the spider and also to the heavy steel side flanges, assuring strength and rigidity. Every wheel is carefully tested and balanced before shipment.



"B" Volume Blower

Buffalo Electric "B" Volume Blowers and Exhausters

The speed of these fans makes them especially suitable for direct connection to motors. Fan and motor are both bolted to the same cast-iron sub-base which prevents either from working out of line. Blast wheel may be overhung on motor shaft or connected to motor by a coupling.

These outfits can be run continuously with only ordinary attention. Motors are furnished open, semi-enclosed or fully enclosed, depending on location and operating conditions. Where it is desired to vary capacity and pressure, variable speed motors can be furnished.



"B" Volume Exhauster

"B" Volume Blowers and Exhausters are especially adapted for furnishing blast to forges and furnaces, drying, organ blowing, removing smoke and fumes in small ventilating installations and for conveying dust and refuse from grinding and polishing wheels.

Inquiries should always state voltage if direct current is used; if alternating current, voltage, number of cycles and phase.

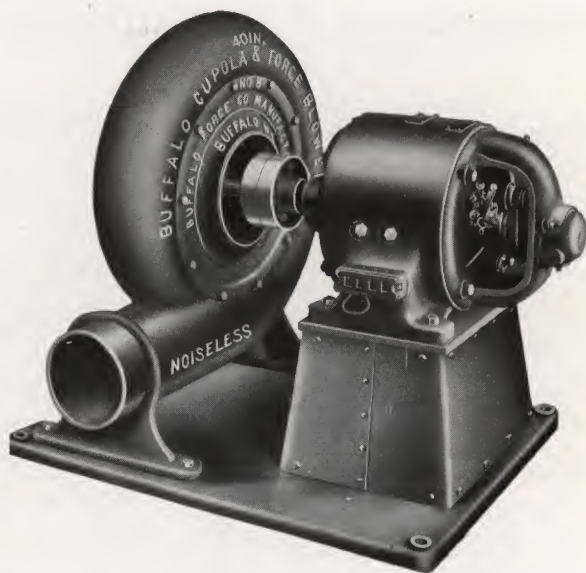
Buffalo Electric "B" Volume Blowers and Exhausters

Speeds, Capacities and Horsepowers.

Total Pressure in Ounces

No. of Blower	½ Oz.			1 Oz.			2 Oz.		
	R. P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.
1	1693	104	.02	2396	148	.07	3393	210	.23
2	1397	264	.06	1976	374	.19	2800	534	.59
3	980	438	.10	1387	621	.31	1965	888	.99
4	859	585	.13	1216	828	.41	1724	1174	1.30
5	776	837	.19	1098	1185	.59	1556	1688	1.87
6	635	1185	.26	898	1677	.84	1274	2382	2.65
7	582	1372	.31	823	1941	.97	1168	2752	3.06
8	499	1986	.44	706	2810	1.41	1000	3983	4.43
9	411	3299	.73	581	4668	2.33	824	6641	7.30
10	349	4488	1.00	494	6350	3.18	702	9003	9.90
	3 Oz.			4 Oz.			6 Oz.		
	R. P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.
1	4169	258	.38	3977	753	1.37			
2	3437	651	.96	2794	1261	2.29	3436	1551	3.86
3	2414	1090	1.62						
4	2119	1441	2.14	2452	1667	3.03	3015	2051	5.13
5	1912	2071	3.08	2212	2397	4.36	2721	2948	7.37
6	1563	2923	4.33	1809	3382	6.15	2225	4160	10.40
7	1434	3377	5.00	1660	3908	7.10	2041	4806	12.00
8	1229	4888	7.24	1422	5656	10.20	1748	6957	17.40
9	1012	8150	12.10	1171	9431	17.10	1440	11599	28.90
10	861	11050	15.00	966	12786	21.90	1225	15726	37.00

Buffalo Steel Pressure Blowers



Buffalo Steel Pressure Blowers have a cast-iron solid peripheral shell which absolutely prevents leakage and assures a maximum air delivery. Removable cast-iron side plates give easy access to interior and allow blast wheel and shaft to be removed without trouble.

Blast wheel consists of a heavy malleable-iron hub with arms upon which are mounted every alternate blade, there being ten blades. The blades are curved slightly backward and enclosed between two heavy steel plate flanges, the principal blades being also riveted to the arms of the spider. Every wheel is carefully tested and balanced before shipment, assuring a smooth-running, vibrationless machine.

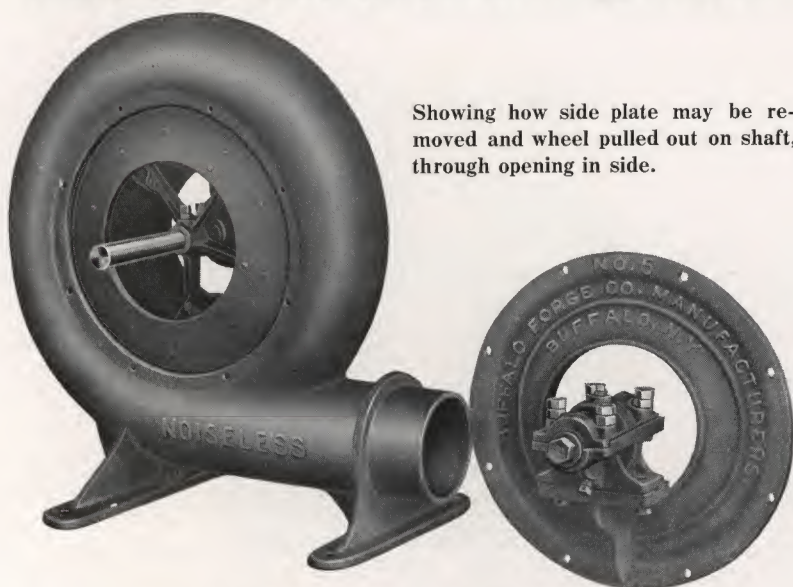
Fan and motor are both bolted to the same cast-iron sub-base, providing a compact, self-contained outfit. Motor and blast wheel may be connected by coupling or wheel may be overhung on motor shaft.

Bearings are ring-oiling with reservoirs having suitable capacity for a month's run. Journals are extra long and lined with the best babbitt metal. Bearings are mounted on rigid arms or brackets and babbitted in position, making lack of alignment absolutely impossible.

Steel Pressure Blowers are especially adaptable for supplying blast to cupolas, furnaces and forges where pressures from four to fourteen ounces are required.

Give details of current when ordering. If direct, give voltage and if alternating, voltage, phase and cycles.

Buffalo Steel Pressure Blowers



Showing how side plate may be removed and wheel pulled out on shaft, through opening in side.

Speeds, Capacities and Horsepowers Static Pressure in Ounces

No. of Blower	4 Oz.			6 Oz.			8 Oz.		
	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.
3	3950	565	1.25						
4	3330	600	1.32	4065	730	2.40			
5	2930	670	1.47	3585	825	2.70	4130	950	4.14
6	2550	880	1.94	3115	1076	3.52	3585	1240	5.42
7	2255	1045	2.27	2765	1275	4.15	3180	1470	6.40
8	2050	1570	3.43	2510	1925	6.28	2890	2220	9.66
9	1840	2225	4.84	2245	2720	8.87	2585	3135	13.7
10	1375	3255	7.09	1680	3990	13.0	1935	4590	20.0
11	1145	4010	8.74	1400	4915	16.1	1615	5660	24.7
11½	907	4500	10.1	1110	5500	18.5	1280	6350	28.5
12	930	5210	11.3	1135	6380	20.8	1310	7350	32.0

No. of Blower	10 Oz.			12 Oz.			14 Oz.		
	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.
6	4000	1385	7.55	4380	1510	9.9			
7	3560	1640	8.90	3880	1790	11.7	4195	1930	14.7
8	3225	2480	13.6	3525	2705	17.6	3810	2920	22.3
9	2890	3500	19.0	3155	3825	25.0	3410	4125	31.4
10	2160	5135	27.9	2360	5595	36.5	2545	6040	46.1
11	1800	6320	34.4	1970	6900	45.0	2120	7455	56.7
11½	1425	7150	40.2	1555	7720	52.0	1680	8340	65.5
12	1460	8200	44.6	1595	8955	58.4	1720	9660	73.5

Buffalo Steel Pressure Blowers

Application to Forge Fires

Static Pressure in Ounces

How Many Forges	Use Blower No.	Diam. of Main Blast- Pipe	4 oz. Pressure		5 oz. Pressure		6 oz. Pressure		8 oz. Pressure	
			Speed	H. P.	Speed	H. P.	Speed	H. P.	Speed	H. P.
2	2	4½	4986	.79	5596	1.01				
4	3	5	3993	1.47	4473	1.63	4811	2.45		
6	4	5½	3363	1.56	3754	1.80	4051	2.60		
8	5	6	2952	1.78	3308	1.96	3564	2.95	4107	4.39
10	6	7	2573	1.95	2883	2.53	3104	3.31	3577	4.93
13	7	8	2275	2.23	2549	3.02	2749	4.28	3168	6.60
18	8	9½	2067	3.25	2316	4.53	2499	6.46	2880	9.76
26	9	10½	1851	4.75	2074	6.45	2238	9.03	2579	13.66
38	10	12½	1384	6.75	1550	9.41	1673	12.91	1928	19.65
50	11	15	1154	8.50	1293	11.60	1394	15.77	1608	24.11

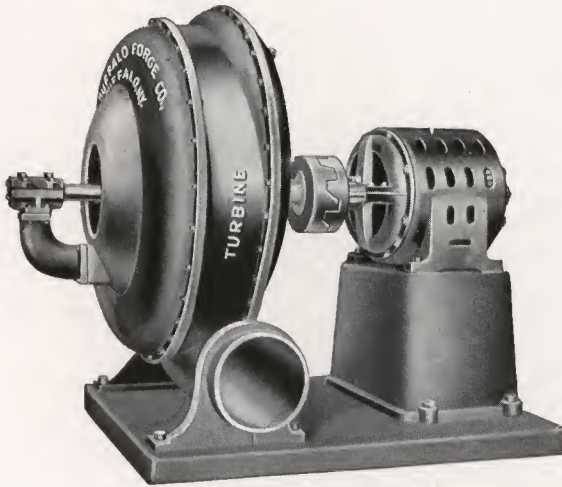
For a number of average fires not exceeding a total of ten, four ounces pressure at the blower is sufficient. If length of main blast pipe is over 100 feet, use next larger size pipe than shown in above table for the blower chosen. If length of main blast pipe is over 150 feet, increase pipe two sizes. Branch pipes to each forge should be three inches in diameter. - Increasing size of pipes reduces friction, increases pressure at the fires, allows speed of blower to be reduced and saves power. If fires are extra heavy, run the blower at a higher speed than shown in above table, if necessary, to get satisfactory results.

For twelve or more average fires, five ounces pressure at the blower is necessary. If main blast pipe is over 100 feet long, increase size as described above.

In railroad, implement and similar shops where some or all of the fires are large and deep, it is necessary to maintain six or eight ounces pressure at the blower, depending on the number of fires.

As the outlet of the blower is smaller than the pipe recommended, use an increaser to connect them.

Buffalo Two-Stage Turbine Blowers



This blower delivers air at double the pressure of an ordinary centrifugal blower running at the same speed. Housing is cast iron, made in sections, providing easy access to the interior. Blast wheel is steel plate with wings and rims mounted on a steel spider, the vanes being secured to the hub tangentially.

High pressure is obtained without excessive speed, making it possible to drive the blower with direct-connected electric motor through rigid or flexible coupling.

Buffalo Steel Plate Pressure Blowers

Constructed throughout to resist the strains of high pressure duty. Housing is heavy gauge steel plate, securely riveted and bolted together and stiffened by a strong angle-iron frame. Blast wheel is heavy steel plate mounted on a malleable-iron spider or hub. The blades or vanes are securely riveted to heavy steel plate flanges and the principal blades are also riveted to the spider arms. Every wheel is carefully tested and balanced. There is no vibration at the highest speeds.

These fans deliver air at pressures up to sixteen ounces and can be built special for pressures as high as twenty-four ounces. On these special built-to-order fans we can guarantee efficiencies exceeding those of any other type, not excepting high efficiency multiblade fans. They can also be built to order to meet speed of motor which you may have on hand.

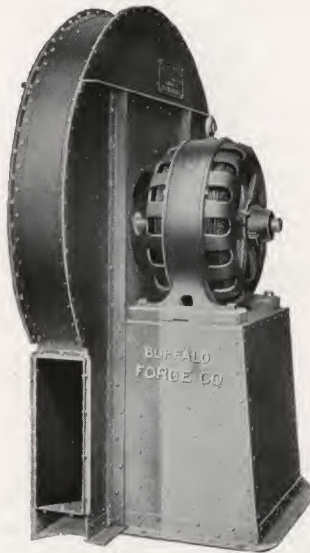
Blast wheel can be overhung on motor shaft or supported by independent pedestal bearings and connected to motor by coupling. Bearings are entirely independent of fan housing. There is no vibration, no belt or bearing troubles. The fan has no frictional surfaces to wear and leak and efficiency is just as high after years of hard service as first day it is operated.

Bearings are ring-oiling with extra long journals and large oil reservoirs requiring little attention besides an occasional oiling.

Buffalo Steel Plate Pressure Blowers are especially adaptable for cupola or furnace service or wherever a high efficiency high pressure fan is wanted.

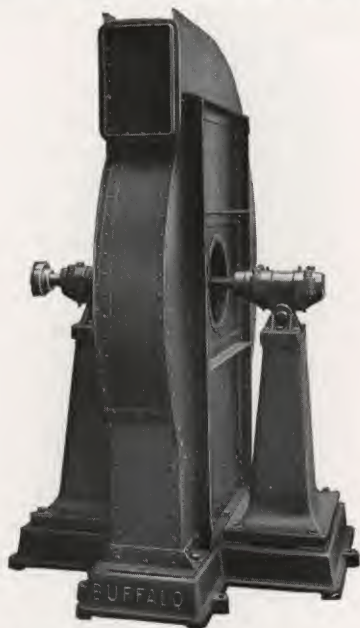
With your inquiry give us details of electric current.

Buffalo Steel Plate Pressure Blowers

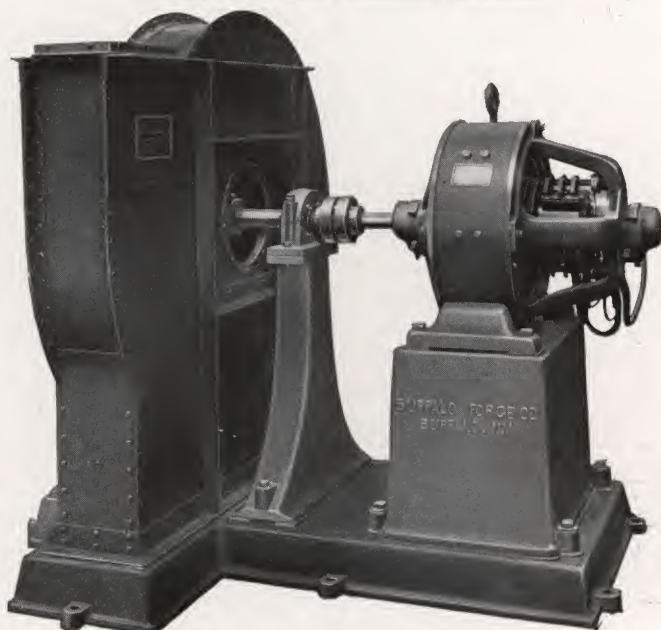


No. of Blower	Pressure Per Sq. Inch				Diam. of Inlets	Area Outlet Sq. In.	List Price of Blower without Sub-base
	10 oz.	12 oz.	14 oz.	16 oz.			
5	R. P. M. Cu. Ft. Air Horse Power Diam. of Wheel	1700 2700 14.6 36.5 in.	1700 2700 17.5 40.2 in.	1700 2700 20.0 43.2 in.	10.3 in.	47	\$ 320.00
6	R. P. M. Cu. Ft. Air Horse Power Diam. of Wheel	1700 3600 19.5 36.5 in.	1700 3600 23.4 40 in.	1700 3600 27.3 43.2 in.	11.4 in.	63	360.00
7	R. P. M. Cu. Ft. Air Horse Power Diam. of Wheel	1700 4800 26 36.5 in.	1700 4800 31 40 in.	1700 4800 36.2 43.2 in.	12.6 in.	84	400.00
8	R. P. M. Cu. Ft. Air Horse Power Diam. of Wheel	1700 6400 34.6 36.6 in.	1700 6400 41.5 40 in.	1700 6400 48.4 43.2 in.	13.75 in.	112	440.00
9	R. P. M. Cu. Ft. Air Horse Power Diam. of Wheel		1120 8000 52 61 in.	1120 8000 60.5 65.7 in.	17.0 in.	126	500.00
10	R. P. M. Cu. Ft. Air Horse Power Diam. of Wheel		1120 10000 65 61 in.	1120 10000 76 65.7 in.	18.3 in.	158	600.00
11	R. P. M. Cu. Ft. Air Horse Power Diam. of Wheel		860 12000 78 71 in.	860 12000 91 77 in.	21.5 in.	190	850.00
12	R. P. M. Cu. Ft. Air Horse Power Diam. of Wheel		860 15000 97 71 in.	860 15000 113 77 in.	22.5 in.	240	1150.00

Buffalo Steel Plate Pressure Blowers



Steel Plate Pressure Blower with Independent Pedestal Bearings for Direct Connection to Motor.



Steel Plate Pressure Blower and Motor

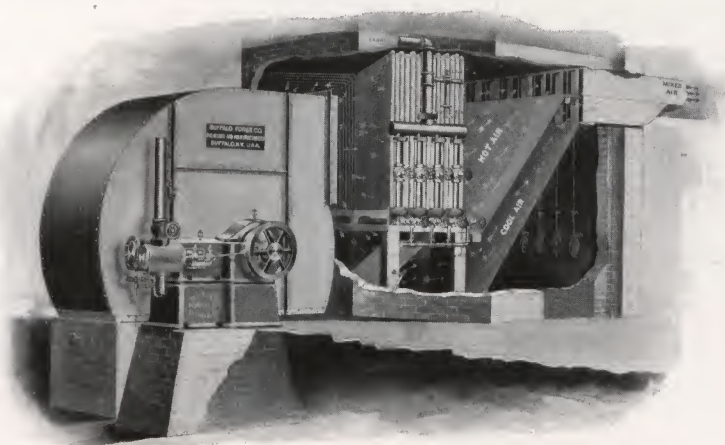
Buffalo Fan System Apparatus

The design and application of Fan System Apparatus is a branch of engineering that has developed very rapidly in the last few years. At the present time there is hardly a public or industrial building that is not using fans or blowers for some purpose. This company has always maintained a thoroughly equipped engineering department and has been the pioneer in many fields where fans and kindred apparatus are now considered invaluable.

We are prepared to act as engineers and manufacturers in designing and building fan system apparatus for all kinds of ventilation, heating, air washing, cooling, humidifying, drying, forced and induced draft, smoke and dust removal, planing mill exhaust systems, handling and cleaning gases, etc. We are glad to offer the services of our engineering department for working out these or any new problems which may come up from time to time in fan engineering.

Obviously, the majority of fan system applications will be special and prices can be quoted only on receipt of full details as to the installation, nature of work to be done, etc.

In a bulletin of this character it would be impossible for us to give complete information on the performance and uses of all types of our fans. We do give a short description and a few tables of some of our standard lines. We have separate complete catalogs on Planoidal Fans, Niagara Conoidal Fans, Exhaust Fans and Heating and Ventilating Apparatus, any of which will gladly be sent on request.



Buffalo Planoidal Fans

For many years it was a matter of common knowledge that the various makes of steel plate fans on the market were of inefficient design and in the case of most manufacturers proportions were not the same, even for the same type of fans in different sizes. These fans, which have come to be known as steel plate or radial blades fans, were given ratings which were incorrect and misleading, so that the best informed engineers could only make an approximation at the factor of safety necessary for the use of the published ratings. It has always been our policy to publish conservative information on our products.

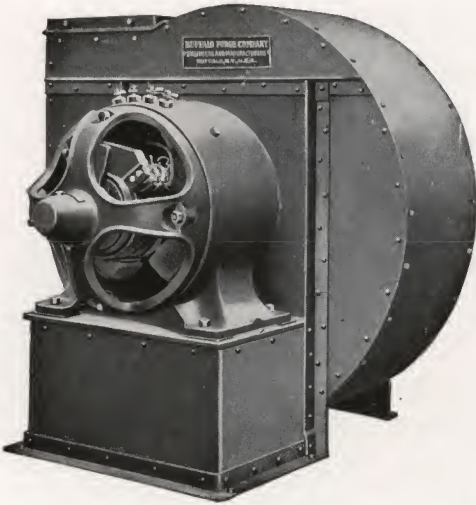
Realizing the need of an efficient steel plate fan, extensive experiments and tests have resulted in the Planoidal (Type L), a modification of our previous steel plate fan. We have incorporated many features which make for efficiency, such as improved scroll proportions of the housing in which the velocity is reduced gradually without shock and inlet cones giving gradual increase of velocity with the same object in view—that of eliminating all unnecessary losses due to sudden change of velocity.

It is quite a mistaken idea that multiblade type fans are necessarily more efficient than radial blade fans with few blades. These fans can be designed with suitable proportions so as to give as good or better efficiency than any multiblade fan. The Planoidal fan is more efficient than any other steel plate fan with an equal number of blades and will for ordinary heating and ventilating work show no appreciable inferiority to the most efficiently designed multiblade fan. They are best for all installations requiring a uniform air quantity in spite of variations in resistance, throttling effect of closing dampers, etc.

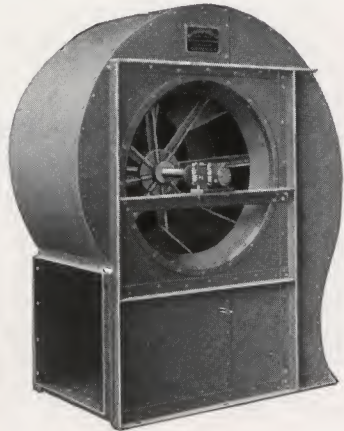
Planoidal fans are built both as exhausters or blowers and are adaptable for direct connection to electric motors, the blast wheel being overhung on motor shaft or connected by coupling. A steel plate base attached to the fan housing may be used or the fan and motor mounted on separate concrete foundations.

Details and prices on request.

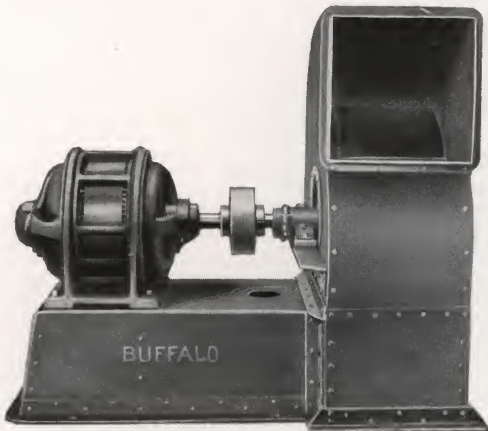
Buffalo Planoidal Fans



**Direct-Connected Planoidal
Fan with Overhung
Blast Wheel**



**Planoidal Fan
Inlet Side**



**Direct-Connected Planoidal
Fan with Coupling between
Motor and Blast Wheel**

Buffalo Niagara Conoidal Fans

The strongest and most efficient commercial fan on the market today for heating, ventilating, drying and mechanical draft is unquestionably the Niagara Conoidal (Type N) multiblade fan. The proof of this statement has been afforded repeatedly by guarantees made and tests performed on actual installations where these fans were able to do the same work with less power and with less noise than other makes.

The Niagara Conoidal fan derives its name from the prevalence of conical shapes and surfaces in its design. There is a cone inlet in the housing, the individual blades are sections of a conical surface and both the inner and the outer edges of the blades instead of being parallel to the shaft form frustums of cones.

Multiblade fans have shorter blades than the steel plate type and static pressure due to wheel is small relative to velocity pressure at tip of wheel. Consequently great dependence must be placed on proper shape of housing and proper proportioning of all parts in order to obtain the best efficiencies of which this type of fan is capable.

The housing is so designed as to make 100% of the outlet area effective, the inner edge of the outlet being approximately tangent to periphery of wheel and height of outlet approximately equal to wheel diameter. With this design static pressure of air issuing from any part of the fan outlet is not more than 15% above or below the average static pressure.

The wheel blades, hub and back plate are designed to give a free, easy flow to the air without shock or sudden change in direction and to equalize volume and pressure over the entire length of the blade. The blades are so designed that there is no deflection at high speeds.

Niagara Conoidal fans are best where it is desirable to reduce capacity without increasing pressure and velocity, as for instance in systems where part of the air ducts may be closed intermittently. They occupy less space and operate at higher speeds but are more sensitive to changes in resistance than steel plate fans.

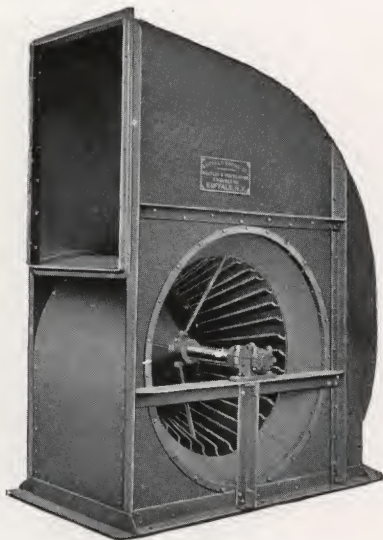
These fans operate at speeds suitable for direct connection to electric motors. Wheel may be overhung on motor shaft or connected to it by coupling. A steel plate base for motor is attached to fan housing or fan and motor are mounted on separate concrete foundations.

Details and prices on request.

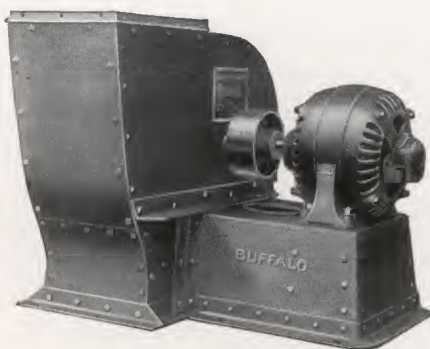
Buffalo Niagara Conoidal Fans



Niagara Conoidal
Blast Wheel



Niagara Conoidal Fan
Inlet Side



Direct-Connected Niagara Conoidal
Fan with Coupling between
Motor and Blast Wheel

Buffalo Standard Electric Mill Exhausters



These exhausters have reversible housings, adjustable to either hand and to any direction of discharge. All adjustments are on the outside of the housing and can be made in a few minutes. The advantages are self-evident. One fan may be used to meet any requirement, eliminating the necessity of crossed belts and avoiding all sharp angles.

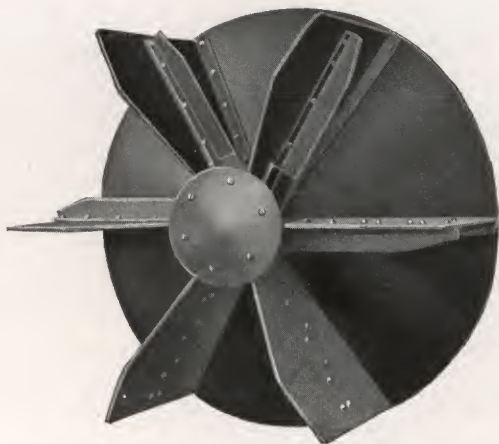
Buffalo Mill Exhausters are used extensively for conveying and removing shavings, sawdust, grain, cotton, dust from abrasive wheels, bark, smoke, gases, fumes, etc. A special blast wheel, which does not catch or hold the material, is used for cotton, wool, spent tanbark and long, stringy shavings.

Fans of special material and construction are offered for handling gases and fumes from acids, smoke from fires and gases at high temperatures. Extra heavy construction is recommended for handling emery exhaust and other heavy abrasive materials.

Motor is placed on a steel plate sub-base rigidly attached to the fan housing, blast wheel being overhung on motor shaft or connected to motor by coupling.

Mill exhausters are also furnished double width, reducing head room and often simplifying piping system.

Buffalo Standard Electric Mill Exhausters



Wheel for Handling Stringy Material

A very rugged and strong construction characterizes both the housing and fan wheel, the latter being the result of several successive improvements in design with a view to increasing the efficiency. Buffalo Mill Exhausters will therefore be found to effect considerable power savings in almost every case.

The housing is heavy rolled steel plate securely bolted together and braced in a manner so as not to interfere with free movement of the material being handled. The smoothness of the interior is a noteworthy feature of the Buffalo Fan and has a favorable effect on the power consumption.

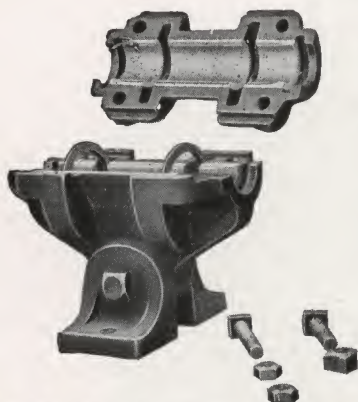
The blast wheel is mounted upon a heavy cast-iron spider or hub. The spokes to which the vanes or blades of the fan are securely riveted are of tee steel, cast into the hub, insuring strength and rigidity. The heavy steel plate blades are not only riveted to the spokes but also to the heavy steel plate side flanges.

The blast wheel is overhung on a hardened steel shaft, giving an open, unobstructed inlet and preventing clogging. Material does not come in contact with bearings.



Standard Blast Wheel

Buffalo Standard Electric Mill Exhausters



Buffalo Double Oil-Ring Bearing

Every wheel is balanced by our special method which insures smooth running and absence of vibration. A running test is made upon each fan at speeds far beyond those required in practice.

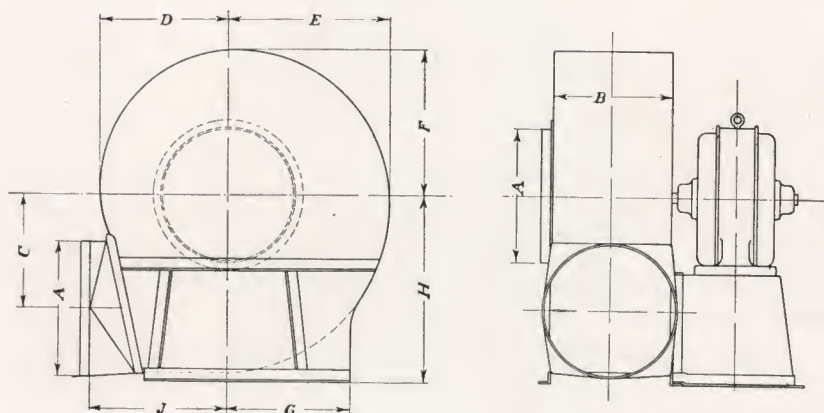
Buffalo Exhausters are built for the hardest service. Close examination of every detail and comparison is invited because it is our conviction that no fan today is as well designed and constructed as the Buffalo. In the matter of design and proportions the high efficiency of these fans is the best proof of their superiority.

Inquiries should state full details of electric current.

Capacities Under Normal Working Conditions Total Pressure in Ounces

Size	1 Oz.			2 Oz.			3 Oz.		
	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.
25	1244	1190	.65	1758	1682	1.84	2153	2060	3.38
30	1025	1650	.90	1450	2340	2.55	1775	2850	4.65
35	890	2300	1.25	1260	3250	3.53	1540	3975	6.48
40	770	3000	1.63	1090	4250	4.60	1334	5190	8.40
45	690	3825	2.08	976	5410	5.95	1195	6620	10.78
50	622	4750	2.58	880	6720	7.28	1078	8220	13.38
55	570	5750	3.12	806	8120	8.83	987	9950	16.25
60	520	6900	3.75	735	9750	10.60	900	11950	19.50
70	450	9400	5.10	637	13300	14.50	780	16300	26.60
80	390	12200	6.63	552	17280	18.75	676	21200	34.50
Size	4 Oz.			5 Oz.			6 Oz.		
	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.
25	2488	2380	5.02	2781	2660	7.03	3047	2915	9.55
30	2050	3300	7.20	2290	3680	10.05	2510	4040	13.32
35	1780	4600	10.00	1990	5140	13.92	2180	5630	18.35
40	1540	6000	13.00	1722	6700	18.15	1888	7350	23.85
45	1380	7650	16.60	1542	8550	23.20	1690	9350	30.40
50	1245	9500	20.60	1391	10600	28.80	1525	11620	37.90
55	1140	11500	25.00	1275	12850	34.90	1398	14080	45.80
60	1040	13800	30.00	1162	15400	41.90	1273	16900	55.00
70	900	18800	40.90	1005	21000	56.90	1100	23000	75.00
80	780	24400	53.00	872	27300	74.00	956	29850	97.20

Buffalo Standard Electric Mill Exhausters



Dimensions in Inches

Size	A	B	C	D	E	F	G	H	J
25	10	9 $\frac{1}{2}$	9 $\frac{1}{8}$	9 $\frac{7}{8}$	12 $\frac{3}{8}$	11 $\frac{1}{8}$	10	15 $\frac{1}{4}$	10 $\frac{5}{8}$
30	12	11 $\frac{1}{4}$	11	12	15	13 $\frac{1}{2}$	11 $\frac{1}{2}$	18	13
35	14	12 $\frac{3}{4}$	12 $\frac{7}{8}$	13 $\frac{7}{8}$	17 $\frac{3}{8}$	15 $\frac{5}{8}$	13	20 $\frac{3}{4}$	15 $\frac{1}{8}$
40	16	14 $\frac{1}{4}$	15	16	20	18	15	24	16 $\frac{7}{8}$
45	18	16 $\frac{1}{4}$	16 $\frac{5}{8}$	17 $\frac{7}{8}$	22 $\frac{3}{8}$	20 $\frac{1}{8}$	17	26 $\frac{5}{8}$	19 $\frac{1}{4}$
50	20	18 $\frac{1}{4}$	18 $\frac{1}{4}$	19 $\frac{3}{4}$	24 $\frac{3}{4}$	22 $\frac{1}{4}$	19	29 $\frac{1}{4}$	21 $\frac{1}{4}$
55	22	19 $\frac{7}{8}$	20 $\frac{1}{8}$	21 $\frac{5}{8}$	27 $\frac{1}{8}$	24 $\frac{3}{8}$	20 $\frac{1}{2}$	32	23
60	24	21 $\frac{3}{8}$	22 $\frac{1}{4}$	23 $\frac{3}{4}$	29 $\frac{3}{4}$	26 $\frac{3}{4}$	22	35	25
70	28	25 $\frac{3}{8}$	25 $\frac{1}{2}$	27 $\frac{1}{2}$	34 $\frac{1}{2}$	31	26	39 $\frac{1}{4}$	28 $\frac{3}{4}$
80	32	28 $\frac{3}{8}$	29 $\frac{1}{2}$	31 $\frac{1}{2}$	39 $\frac{1}{2}$	35 $\frac{1}{2}$	30	45 $\frac{1}{2}$	32 $\frac{1}{2}$

The drawing above shows outfit with blast wheel overhung on motor shaft. Wheel may be connected to motor by coupling in which case a double oil-ring, self-aligning bearing, as shown on previous page, is used.

Buffalo Slow Speed Electric Mill Exhausters

Contrary to the very common belief, slow speed in itself does not insure higher efficiency in a fan. It does, however, decrease wear and tear and vibration and the Buffalo Slow Speed Mill Exhausters would therefore be a desirable investment even if they were no more efficient than high speed fans.

It follows that higher efficiency is not necessarily obtained by building a special blast wheel, enclosed in a standard housing, with a view to obtaining slow speed. This, however, is a very common practice and most so-called slow speed fans belong to this class, despite the extravagant claims that are often made for them.

Manufacturers who actually build a slow speed fan, always attempt, along with the slow speed, to make other improvements in the design to obtain better efficiency.

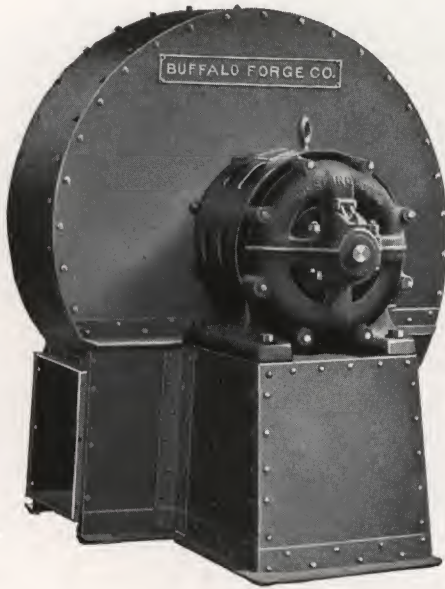
It has long been recognized by fan builders, or at least by those who do any experimental work, that the ordinary proportions of mill exhausters are conducive to large capacity rather than high efficiency.

We believe and the results we have obtained support our statement, that we have gone into this question more thoroughly than any other manufacturer.

Instances are on record, in which, by virtue of our engineering service on one hand and the high efficiency of our slow speed fans on the other, the power consumption has actually been cut in two. Although the fan itself cannot be given credit for savings as high as this, the efficiency of the fan is still more than sufficient to make its purchase attractive.

For instance, a 40-inch Buffalo Slow Speed Fan, operating at 4 oz. pressure, requires 10 H. P. A Standard 40-inch fan, to give the same pressure, requires 13 H. P., a saving in favor of the former of 3 H. P., which would be equivalent to about \$75.00 per year or enough to pay for the fan inside of two years.

Buffalo Slow Speed Electric Mill Exhausters

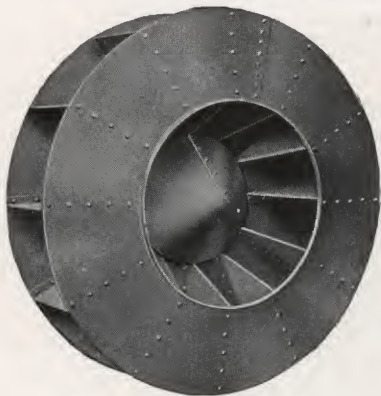


A heavy steel plate cone takes the place of the spider commonly used to support the vanes or blades. The advantages of this construction are apparent. The apex of the cone is at the inlet. The material entering the fan strikes the cone and its direction is gradually changed without the loss of momentum due to sudden changes in direction. The cone, being perfectly smooth, offers no obstruction to the free passage of the material.

The blast wheel is of large diameter and comparatively narrow width; the inlet is small in proportion to the size of the housing. For instance, our 50-inch slow speed fan has the same size inlet pipe as the ordinary 50-inch fan but the housing is actually about 70 inches high. The horsepower and speed are as given in the table on next page, the figures in which are conservative.

The blades are not curved forward as in other makes, since this tends to clog up the wheel and to limit its usefulness in conveying material; nor is the wheel obstructed by an unnecessary number of blades which are of no benefit.

Buffalo Slow Speed Electric Mill Exhausters



Standard Blast Wheel

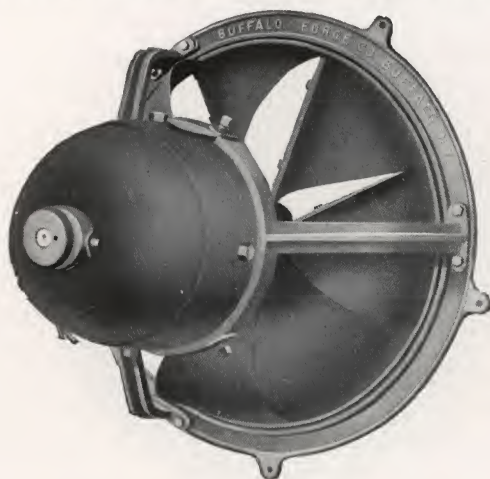
It is significant that an increasing number of manufacturers, by looking into the matter, are finding it a saving to throw away their blow pipe systems and are replacing them with Slow Speed Buffalo Fans.

The standard blast wheel used for these fans is illustrated herewith. For special duties, such as handling shavings and other materials which are liable to become clogged in the fan, a special blast wheel is furnished.

Capacities Under Normal Working Conditions Total Pressure in Ounces

Size	Diameter Inlet	Size Outlet	Maximum Height	2 Oz.			3 Oz.		
				R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.
25	10	8 $\frac{3}{8}$ x 9 $\frac{5}{8}$	35 $\frac{3}{8}$	1088	1682	1.56	1333	2060	2.85
30	12 $\frac{1}{2}$	11 $\frac{3}{4}$ x 9 $\frac{7}{8}$	41 $\frac{3}{4}$	906	2340	2.12	1110	2850	3.87
35	14 $\frac{5}{8}$	13 $\frac{5}{8}$ x 11 $\frac{1}{2}$	48 $\frac{3}{4}$	781	3250	2.94	958	3975	5.40
40	16 $\frac{5}{8}$	15 $\frac{5}{8}$ x 13 $\frac{1}{8}$	55	682	4250	3.83	837	5190	7.00
45	18 $\frac{5}{8}$	17 $\frac{5}{8}$ x 14 $\frac{5}{8}$	62	605	5410	4.96	742	6620	8.97
50	20 $\frac{5}{8}$	19 $\frac{1}{4}$ x 16 $\frac{5}{8}$	69 $\frac{1}{4}$	544	6720	6.06	667	8220	11.10
55	22 $\frac{3}{4}$	21 $\frac{3}{8}$ x 18 $\frac{1}{8}$	75 $\frac{1}{2}$	494	8120	7.35	606	9950	13.50
60	24 $\frac{3}{4}$	23 $\frac{1}{8}$ x 19 $\frac{7}{8}$	82 $\frac{1}{2}$	453	9750	8.83	556	11950	16.20
70	28 $\frac{3}{4}$	27 x 23	96 $\frac{1}{4}$	387	13300	12.10	477	16300	22.10
80	32 $\frac{3}{4}$	30 $\frac{3}{4}$ x 26 $\frac{1}{2}$	110 $\frac{1}{4}$	341	17280	15.60	418	21200	28.70
Size	4 Oz.			5 Oz.			6 Oz.		
	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.	R.P.M.	Cap.	H. P.
25	1540	2380	4.40	1721	2660	6.14	1886	2915	8.10
30	1280	3300	6.00	1428	3680	8.37	1570	4040	11.10
35	1100	4600	8.32	1230	5140	11.59	1350	5630	15.25
40	965	6000	10.80	1075	6700	15.10	1180	7350	19.84
45	855	7650	13.80	955	8550	19.3	1050	9350	25.30
50	769	9500	17.12	860	10600	24.0	942	11620	31.50
55	698	11500	20.80	782	12850	29.1	856	14080	38.10
60	641	13800	25.00	718	15400	34.7	786	16900	45.80
70	550	18800	34.10	613	21000	47.3	674	23000	62.40
80	482	24400	44.20	570	27300	61.7	590	29850	81.00

Buffalo Electric Propeller Fans



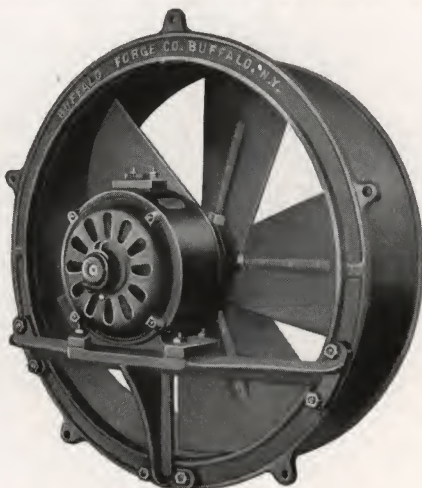
The uses of Buffalo Propeller Fans are essentially the same as of disk fans described on the following pages. Propeller fans are used in preference to the latter where the space available for the fan is so small that it becomes a matter of obtaining one of the smallest possible dimensions.

In this respect a Buffalo Propeller Fan is unequalled. Its capacity, size for size, is from 25% to 30% greater than that of a disk fan. This higher capacity has been obtained by the peculiar propeller-like design of the blades.

The angle and curvature of the blades are correct, causing the air to pass through the fan in a direction parallel to its axis, with uniform velocity throughout the entire area. Back flow is impossible, even though the delivery is against pressure.

Size	Voltage of Motor	R.P.M.	Cu. Ft. Air Per Minute	Approx. Wt. Complete	List Price Gen. Electric Motor	List Price Peerless Motor
18	110	800	2000	200 lbs.	\$160.00	\$155.00
	220	800	2000	200 lbs.	165.00	162.50
	500	800	2000	200 lbs.	170.00	170.00
24	100	650	3900	300 lbs.	195.00	182.50
	220	650	3900	300 lbs.	200.00	190.00
	500	650	3900	300 lbs.	205.00	195.00
30	110	525	6050	450 lbs.	240.00	235.00
	220	525	6050	450 lbs.	245.00	240.00
	500	525	6050	450 lbs.	250.00	247.50
36	110	425	8420	625 lbs.	385.00	360.00
	220	425	8420	625 lbs.	395.00	372.50
	500	425	8420	625 lbs.	405.00	385.00

Buffalo Electric Disk Fans



This Style Made in Three Sizes—18-in., 24-in., and 30-in.

Buffalo Electric Disk Fans are of the most advanced type of disk wheel construction and owing to their compactness can be installed in places where otherwise it would be impossible to secure ventilation.

The motor is secured to the frame of the disk wheel by means of a bracket on the smaller sizes and by a tripod in sizes from 36 inches and up. No floor space or supports are necessary. Just bolt the frame to an opening in the wall or in a window, connect the wires and you have, at once, the most compact and efficient ventilating system available.

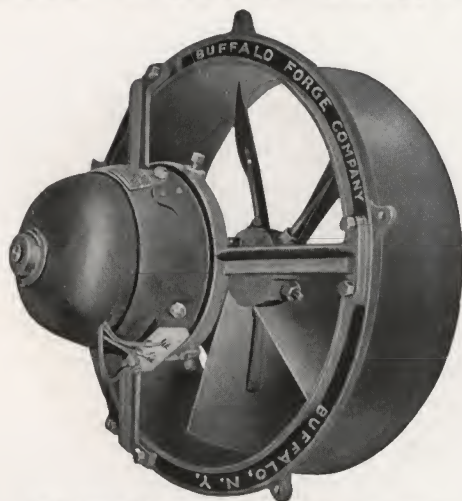
In manufacturing establishments, the disk fan can be applied with excellent results to a great variety of purposes.

In the finishing room, it removes the noxious fumes from paints, oils, varnishes and other finishing materials.

Electric Disk Fans				Direct Current		Alternating Current 1, 2, 3 phase, 60-cycle	
Size	Voltage of Motors	Cu. Ft. Air Per Minute	App. Wt. Complete	Speed R. P. M.	List Prices	Speed R. P. M.	List Prices
18 in.	110-220	1950	125 lbs.	1000	\$ 90.00	1120	\$110.00
24 in.	110-220	4000	200 lbs.	900	112.50	850	160.00
30 in.	110-220	7200	300 lbs.	800	140.00	850	230.00

N. B.—Starting rheostats are not required.

Buffalo Electric Disk Fans



This Style Made in Sizes 36-in., and larger

In manufacturing processes, it removes dust, lint, steam and over-heated air and keeps the efficiency of the men at a high point.

In boiler and engine rooms, lavatories, etc., it removes the excessive heat and foul air better and at less cost than any other device.

In hotels, restaurants, department stores, theatres and other public places, the disk fan can easily be installed so as to be completely concealed, without affecting its efficiency.

In such places no more efficient remedy could be devised for the comfort of patrons and employees than the disk fan. Its operation is noiseless and no attention is required except occasional oiling.

Tell us the size of the room you want to ventilate and the conditions and we will recommend a suitable outfit.

Large Sizes

Fitted with Direct Current Motors. General Electric or Peerless Makes.

Size	Volt. of Motor	Speed R. P. M.	Cu. Ft. of Air per Min.	Weight Complete	List Price Gen. Electric	List Price Peerless
36 in.	110	525	8150	450 lbs.	\$320.00	\$300.00
	220	525	8150	450 lbs.	327.50	310.00
	500	525	8150	450 lbs.	337.50	320.00
42 in.	110	450	11150	625 lbs.	412.50	400.00
	220	450	11150	625 lbs.	425.00	410.00
	500	450	11150	625 lbs.	437.50	425.00
48 in.	110	400	14600	800 lbs.	495.00	487.50
	220	400	14600	800 lbs.	512.00	500.00
	500	400	14600	800 lbs.	525.00	512.50

Prices include starting rheostats. A speed regulator giving up to 50% variation can be furnished at slight additional cost.

